# NTA JEE 2024_27 29 30 31 Jan 1st Feb 2024

| | |
|---|---|
| | |
| | @JEEAdvanced_2024 |
| | |
| Test Date | 27/01/2024 |
| Test Time | 3:00 PM - 6:00 PM |
| Subject | B. Tech |

**Section :** Mathematics Section A

Q.1 Considering only the principal values of inverse trigonometric functions, the number of positive real values of $x$ satisfying $\tan^{-1}(x) + \tan^{-1}(2x) = \frac{\pi}{4}$ is :

Options
1. 0
2. 2
3. more than 2
4. 1

**Question Type :** MCQ
**Question ID :** 533543486
**Option 1 ID :** 5335431707
**Option 2 ID :** 5335431709
**Option 3 ID :** 5335431710
**Option 4 ID :** 5335431708
**Status :** Answered
**Chosen Option :** 1

Q.2 If $\lim\limits_{x\to 0} \frac{3 + \alpha \sin x + \beta \cos x + \log_e(1 - x)}{3\tan^2 x} = \frac{1}{3}$, then $2\alpha - \beta$ is equal to :

Options
1. 1
2. 7
3. 2
4. 5

**Question Type :** MCQ
**Question ID :** 533543474
**Option 1 ID :** 5335431659
**Option 2 ID :** 5335431662
**Option 3 ID :** 5335431660
**Option 4 ID :** 5335431661
**Status :** Not Answered
**Chosen Option :** --

Q.3

Let the image of the point (1, 0, 7) in the line $\frac{x}{1} = \frac{y-1}{2} = \frac{z-2}{3}$ be the point $(\alpha, \beta, \gamma)$. Then which one of the following points lies on the line passing through $(\alpha, \beta, \gamma)$ and making angles $\frac{2\pi}{3}$ and $\frac{3\pi}{4}$ with $y$-axis and $z$-axis respectively and an acute angle with $x$-axis ?

Options

1. $(3, -4, 3+2\sqrt{2})$
2. $(1, 2, 1-\sqrt{2})$
3. $(1, -2, 1+\sqrt{2})$
4. $(3, 4, 3-2\sqrt{2})$

**Question Type :** MCQ
**Question ID :** 533543482
**Option 1 ID :** 5335431694
**Option 2 ID :** 5335431692
**Option 3 ID :** 5335431691
**Option 4 ID :** 5335431693
**Status :** Not Answered
**Chosen Option :** --

Q.4 If $\alpha, \beta$ are the roots of the equation, $x^2 - x - 1 = 0$ and $S_n = 2023\,\alpha^n + 2024\,\beta^n$, then :

Options

1. $S_{12} = S_{11} + S_{10}$
2. $2S_{11} = S_{12} + S_{10}$
3. $2S_{12} = S_{11} + S_{10}$
4. $S_{11} = S_{10} + S_{12}$

**Question Type :** MCQ
**Question ID :** 533543469
**Option 1 ID :** 5335431640
**Option 2 ID :** 5335431642
**Option 3 ID :** 5335431641
**Option 4 ID :** 5335431639
**Status :** Not Answered
**Chosen Option :** --

Q.5

Let $\alpha = \frac{(4!)!}{(4!)^{3!}}$ and $\beta = \frac{(5!)!}{(5!)^{4!}}$. Then :

Options

1. $\alpha \notin \mathbf{N}$ and $\beta \in \mathbf{N}$
2. $\alpha \in \mathbf{N}$ and $\beta \in \mathbf{N}$
3. $\alpha \in \mathbf{N}$ and $\beta \notin \mathbf{N}$
4. $\alpha \notin \mathbf{N}$ and $\beta \notin \mathbf{N}$

**Question Type :** MCQ
**Question ID :** 533543471
**Option 1 ID :** 5335431648
**Option 2 ID :** 5335431650
**Option 3 ID :** 5335431649
**Option 4 ID :** 5335431647
**Status :** Not Answered
**Chosen Option :** --

Q.6

The position vectors of the vertices A, B and C of a triangle are $2\hat{i} - 3\hat{j} + 3\hat{k}$, $2\hat{i} + 2\hat{j} + 3\hat{k}$ and $-\hat{i} + \hat{j} + 3\hat{k}$ respectively. Let $l$ denotes the length of the angle bisector AD of $\angle BAC$ where D is on the line segment BC, then $2l^2$ equals :

Options

1. 50
2. 42
3. 49
4. 45

**Question Type :** MCQ
**Question ID :** 533543484
**Option 1 ID :** 5335431702
**Option 2 ID :** 5335431700
**Option 3 ID :** 5335431701
**Option 4 ID :** 5335431699
**Status :** Answered
**Chosen Option :** 4

Q.7 The $20^{th}$ term from the end of the progression $20, 19\frac{1}{4}, 18\frac{1}{2}, 17\frac{3}{4}, \ldots, -129\frac{1}{4}$ is :

Options

1. $-100$
2. $-115$
3. $-118$
4. $-110$

**Question Type :** MCQ
**Question ID :** 533543472
**Option 1 ID :** 5335431651
**Option 2 ID :** 5335431653
**Option 3 ID :** 5335431654
**Option 4 ID :** 5335431652
**Status :** Not Answered
**Chosen Option :** --

Q.8 An urn contains 6 white and 9 black balls. Two successive draws of 4 balls are made without replacement. The probability, that the first draw gives all white balls and the second draw gives all black balls, is :

Options

1. $\frac{3}{256}$
2. $\frac{5}{715}$
3. $\frac{3}{715}$
4. $\frac{5}{256}$

**Question Type :** MCQ
**Question ID :** 533543485
**Option 1 ID :** 5335431705
**Option 2 ID :** 5335431703
**Option 3 ID :** 5335431704
**Option 4 ID :** 5335431706
**Status :** Not Answered
**Chosen Option :** --

Q.9

For $0 < a < 1$, the value of the integral $\int_0^{\pi} \frac{dx}{1 - 2a\cos x + a^2}$ is :

Options

1. $\frac{\pi}{1 - a^2}$

2. $\frac{\pi^2}{\pi - a^2}$

3. $\frac{\pi^2}{\pi + a^2}$

4. $\frac{\pi}{1 + a^2}$

**Question Type :** MCQ
**Question ID :** 533543478
**Option 1 ID :** 5335431676
**Option 2 ID :** 5335431677
**Option 3 ID :** 5335431678
**Option 4 ID :** 5335431675
**Status :** Not Answered
**Chosen Option :** --

Q.10 If $2\tan^2\theta - 5\sec\theta = 1$ has exactly 7 solutions in the interval $\left[0, \frac{n\pi}{2}\right]$, for the least value of $n \in \mathbf{N}$,

then $\sum_{k=1}^{n} \frac{k}{2^k}$ is equal to :

Options

1. $\frac{1}{2^{15}}(2^{14} - 14)$

2. $\frac{1}{2^{13}}(2^{14} - 15)$

3. $1 - \frac{15}{2^{13}}$

4. $\frac{1}{2^{14}}(2^{15} - 15)$

**Question Type :** MCQ
**Question ID :** 533543473
**Option 1 ID :** 5335431658
**Option 2 ID :** 5335431657
**Option 3 ID :** 5335431655
**Option 4 ID :** 5335431656
**Status :** Not Answered
**Chosen Option :** --

Q.11

Let the position vectors of the vertices A, B and C of a triangle be $2\hat{i}+2\hat{j}+\hat{k}$, $\hat{i}+2\hat{j}+2\hat{k}$ and $2\hat{i}+\hat{j}+2\hat{k}$ respectively. Let $l_1$, $l_2$ and $l_3$ be the lengths of perpendiculars drawn from the ortho center of the triangle on the sides AB, BC and CA respectively, then $l_1^2+l_2^2+l_3^2$ equals :

Options

1. $\frac{1}{2}$
2. $\frac{1}{5}$
3. $\frac{1}{4}$
4. $\frac{1}{3}$

**Question Type :** MCQ
**Question ID :** 533543483
**Option 1 ID :** 5335431695
**Option 2 ID :** 5335431698
**Option 3 ID :** 5335431697
**Option 4 ID :** 5335431696
**Status :** Not Answered
**Chosen Option :** --

Q.12

Let $e_1$ be the eccentricity of the hyperbola $\frac{x^2}{16}-\frac{y^2}{9}=1$ and $e_2$ be the eccentricity of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$, a > b, which passes through the foci of the hyperbola. If $e_1e_2=1$, then the length of the chord of the ellipse parallel to the $x$-axis and passing through (0, 2) is :

Options

1. $\frac{8\sqrt{5}}{3}$
2. $3\sqrt{5}$
3. $4\sqrt{5}$
4. $\frac{10\sqrt{5}}{3}$

**Question Type :** MCQ
**Question ID :** 533543480
**Option 1 ID :** 5335431686
**Option 2 ID :** 5335431683
**Option 3 ID :** 5335431685
**Option 4 ID :** 5335431684
**Status :** Not Answered
**Chosen Option :** --

Q.13

Consider the function $f : (0, 2) \to \mathbf{R}$ defined by $f(x) = \frac{x}{2} + \frac{2}{x}$ and the function $g(x)$ defined by

$$g(x) = \begin{cases} \min\{f(t)\}, & 0 < t \le x \text{ and } 0 < x \le 1 \\ \frac{3}{2} + x, & 1 < x < 2 \end{cases}$$ . Then,

Options

1. $g$ is continuous and differentiable for all $x \in (0, 2)$
2. $g$ is not continuous for all $x \in (0, 2)$
3. $g$ is neither continuous nor differentiable at $x = 1$
4. $g$ is continuous but not differentiable at $x = 1$

**Question Type :** MCQ
**Question ID :** 533543475
**Option 1 ID :** 5335431663
**Option 2 ID :** 5335431666
**Option 3 ID :** 5335431665
**Option 4 ID :** 5335431664
**Status :** Not Answered
**Chosen Option :** --

Q.14

If $y = y(x)$ is the solution curve of the differential equation $(x^2 - 4)\,dy - (y^2 - 3y)dx = 0, x > 2$, $y(4) = \frac{3}{2}$ and the slope of the curve is never zero, then the value of $y(10)$ equals :

Options

1. $\frac{3}{1 - 2\sqrt{2}}$
2. $\frac{3}{1 - (8)^{1/4}}$
3. $\frac{3}{1 + 2\sqrt{2}}$
4. $\frac{3}{1 + (8)^{1/4}}$

**Question Type :** MCQ
**Question ID :** 533543479
**Option 1 ID :** 5335431682
**Option 2 ID :** 5335431679
**Option 3 ID :** 5335431681
**Option 4 ID :** 5335431680
**Status :** Not Answered
**Chosen Option :** --

Q.15

The integral $\int \frac{(x^8 - x^2)\,dx}{(x^{12} + 3x^6 + 1)\tan^{-1}\left(x^3 + \frac{1}{x^3}\right)}$ is equal to :

Options

1. $\log_e\left(\left|\tan^{-1}\left(x^3 + \frac{1}{x^3}\right)\right|\right) + C$

2. $\log_e\left(\left|\tan^{-1}\left(x^3 + \frac{1}{x^3}\right)\right|\right)^3 + C$

3. $\log_e\left(\left|\tan^{-1}\left(x^3 + \frac{1}{x^3}\right)\right|\right)^{1/3} + C$

4. $\log_e\left(\left|\tan^{-1}\left(x^3 + \frac{1}{x^3}\right)\right|\right)^{1/2} + C$

**Question Type :** MCQ
**Question ID :** 533543477
**Option 1 ID :** 5335431671
**Option 2 ID :** 5335431673
**Option 3 ID :** 5335431672
**Option 4 ID :** 5335431674
**Status :** Not Answered
**Chosen Option :** --

Q.16

The values of $\alpha$, for which $\begin{vmatrix} 1 & \frac{3}{2} & \alpha+\frac{3}{2} \\ 1 & \frac{1}{3} & \alpha+\frac{1}{3} \\ 2\alpha+3 & 3\alpha+1 & 0 \end{vmatrix} = 0$, lie in the interval

Options

1. $\left(-\frac{3}{2}, \frac{3}{2}\right)$
2. $(-3, 0)$
3. $(0, 3)$
4. $(-2, 1)$

**Question Type :** MCQ
**Question ID :** 533543470
**Option 1 ID :** 5335431645
**Option 2 ID :** 5335431644
**Option 3 ID :** 5335431643
**Option 4 ID :** 5335431646
**Status :** Not Answered
**Chosen Option :** --

Q.17

Let A and B be two finite sets with m and n elements respectively. The total number of subsets of the set A is 56 more than the total number of subsets of B. Then the distance of the point P(m,n) from the point Q(−2, −3) is :

Options

1. 6
2. 4
3. 10
4. 8

**Question Type :** MCQ
**Question ID :** 533543468
**Option 1 ID :** 5335431636
**Option 2 ID :** 5335431635
**Option 3 ID :** 5335431638
**Option 4 ID :** 5335431637
**Status :** Not Answered
**Chosen Option :** --

Q.18

Let $g(x) = 3f\left(\frac{x}{3}\right) + f(3-x)$ and $f''(x) > 0$ for all $x \in (0, 3)$. If $g$ is decreasing in $(0, \alpha)$ and increasing in $(\alpha, 3)$, then $8\alpha$ is :

Options

1. 18
2. 20
3. 0
4. 24

**Question Type :** MCQ
**Question ID :** 533543476
**Option 1 ID :** 5335431669
**Option 2 ID :** 5335431670
**Option 3 ID :** 5335431667
**Option 4 ID :** 5335431668
**Status :** Not Answered
**Chosen Option :** --

Q.19

Let $f : \mathbf{R} - \left\{\frac{-1}{2}\right\} \to \mathbf{R}$ and $g : \mathbf{R} - \left\{\frac{-5}{2}\right\} \to \mathbf{R}$ be defined as $f(x) = \frac{2x+3}{2x+1}$ and $g(x) = \frac{|x|+1}{2x+5}$. Then, the domain of the function fog is :

Options

1. $\mathbf{R}$
2. $\mathbf{R} - \left\{-\frac{7}{4}\right\}$
3. $\mathbf{R} - \left\{-\frac{5}{2}, -\frac{7}{4}\right\}$
4. $\mathbf{R} - \left\{-\frac{5}{2}\right\}$

**Question Type :** MCQ
**Question ID :** 533543467
**Option 1 ID :** 5335431631
**Option 2 ID :** 5335431633
**Option 3 ID :** 5335431634
**Option 4 ID :** 5335431632
**Status :** Not Answered
**Chosen Option :** --

Q.20 Let R be the interior region between the lines $3x-y+1=0$ and $x+2y-5=0$ containing the origin. The set of all values of a, for which the points $(a^2, a+1)$ lie in R, is :

Options

1. $(-3,0) \cup \left(\frac{2}{3}, 1\right)$

2. $(-3,0) \cup \left(\frac{1}{3}, 1\right)$

3. $(-3,-1) \cup \left(\frac{1}{3}, 1\right)$

4. $(-3,-1) \cup \left(-\frac{1}{3}, 1\right)$

**Question Type :** MCQ
**Question ID :** 533543481
**Option 1 ID :** 5335431688
**Option 2 ID :** 5335431690
**Option 3 ID :** 5335431689
**Option 4 ID :** 5335431687
**Status :** Not Answered
**Chosen Option :** --

**Section :** Mathematics Section B

Q.21 The coefficient of $x^{2012}$ in the expansion of $(1-x)^{2008}(1+x+x^2)^{2007}$ is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543490
**Status :** Not Answered

Q.22 Consider a circle $(x-\alpha)^2+(y-\beta)^2=50$, where $\alpha, \beta > 0$. If the circle touches the line $y+x=0$ at the point P, whose distance from the origin is $4\sqrt{2}$, then $(\alpha+\beta)^2$ is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543494
**Status :** Not Answered

Q.23 If the solution curve, of the differential equation $\frac{dy}{dx} = \frac{x + y - 2}{x - y}$ passing through the point (2, 1) is $\tan^{-1}\left(\frac{y-1}{x-1}\right) - \frac{1}{\beta}\log_e\left(\alpha + \left(\frac{y-1}{x-1}\right)^2\right) = \log_e|x-1|$, then $5\beta + \alpha$ is equal to.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543493
**Status :** Not Answered

Q.24 The mean and standard deviation of 15 observations were found to be 12 and 3 respectively. On rechecking it was found that an observation was read as 10 in place of 12. If $\mu$ and $\sigma^2$ denote the mean and variance of the correct observations respectively, then $15(\mu + \mu^2 + \sigma^2)$ is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543496
**Status :** Not Answered

Q.25 Let A be a $2 \times 2$ real matrix and I be the identity matrix of order 2. If the roots of the equation $|A - xI| = 0$ be $-1$ and 3, then the sum of the diagonal elements of the matrix $A^2$ is _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543488
**Status :** Not Answered

Q.26 If the area of the region $\{(x, y) : 0 \le y \le \min\{2x, 6x - x^2\}\}$ is A, then 12 A is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543492
**Status :** Not Answered

Q.27 Let the complex numbers $\alpha$ and $\frac{1}{\alpha}$ lie on the circles $|z - z_0|^2 = 4$ and $|z - z_0|^2 = 16$ respectively, where $z_0 = 1 + i$. Then, the value of $100\,|\alpha|^2$ is _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543487
**Status :** Not Answered

Q.28 If the sum of squares of all real values of $\alpha$, for which the lines $2x-y+3=0$, $6x+3y+1=0$ and $\alpha x+2y-2=0$ **do not** form a triangle is p, then the greatest integer less than or equal to p is _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543489
**Status :** Not Answered

Q.29 Let $f(x)=\int_0^x g(t)\log_e\left(\frac{1-t}{1+t}\right)dt$, where $g$ is a continuous odd function.

If $\int_{-\pi/2}^{\pi/2}\left(f(x)+\frac{x^2\cos x}{1+e^x}\right)dx=\left(\frac{\pi}{\alpha}\right)^2-\alpha$, then $\alpha$ is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543491
**Status :** Not Answered

Q.30 The lines $\frac{x-2}{2}=\frac{y}{-2}=\frac{z-7}{16}$ and $\frac{x+3}{4}=\frac{y+2}{3}=\frac{z+2}{1}$ intersect at the point P. If the distance of P from the line $\frac{x+1}{2}=\frac{y-1}{3}=\frac{z-1}{1}$ is $l$, then $14\,l^2$ is equal to _____.

**Given --**
**Answer :**

**Question Type :** SA
**Question ID :** 533543495
**Status :** Not Answered

**Section :** Physics Section A

Q.31 Wheatstone bridge principle is used to measure the specific resistance ($S_1$) of given wire, having length L, radius r. If X is the resistance of wire, then specific resistance is ; $S_1 = X\left(\frac{\pi r^2}{L}\right)$.

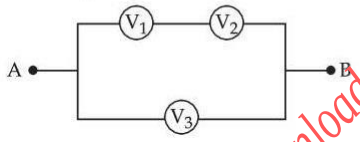
If the length of the wire gets doubled then the value of specific resistance will be :

Options

1. $\frac{S_1}{2}$
2. $S_1$
3. $\frac{S_1}{4}$
4. $2\,S_1$

**Question Type :** MCQ
**Question ID :** 533543516
**Option 1 ID :** 5335431797
**Option 2 ID :** 5335431800
**Option 3 ID :** 5335431798
**Option 4 ID :** 5335431799
**Status :** Answered
**Chosen Option :** 1

Q.32 Three voltmeters, all having different internal resistances are joined as shown in figure. When some potential difference is applied across A and B, their readings are $V_1$, $V_2$ and $V_3$. Choose the correct option.




Options

1. $V_1 = V_2$
2. $V_1 + V_2 > V_3$
3. $V_1 + V_2 = V_3$
4. $V_1 \neq V_3 - V_2$

**Question Type :** MCQ
**Question ID :** 533543507
**Option 1 ID :** 5335431761
**Option 2 ID :** 5335431764
**Option 3 ID :** 5335431763
**Option 4 ID :** 5335431762
**Status :** Answered
**Chosen Option :** 3

Q.33 A heavy iron bar of weight 12 kg is having its one end on the ground and the other on the shoulder of a man. The rod makes an angle 60° with the horizontal, the weight experienced by the man is :

Options

1. 12 kg
2. $6\sqrt{3}$ kg
3. 3 kg
4. 6 kg

**Question Type :** MCQ
**Question ID :** 533543499
**Option 1 ID :** 5335431732
**Option 2 ID :** 5335431729
**Option 3 ID :** 5335431730
**Option 4 ID :** 5335431731
**Status :** Answered
**Chosen Option :** 4

Q.34 When a polaroid sheet is rotated between two crossed polaroids then the transmitted light intensity will be maximum for a rotation of :

Options

1. 60°
2. 90°
3. 30°
4. 45°

**Question Type :** MCQ
**Question ID :** 533543511
**Option 1 ID :** 5335431779
**Option 2 ID :** 5335431780
**Option 3 ID :** 5335431777
**Option 4 ID :** 5335431778
**Status :** Not Answered
**Chosen Option :** --

Q.35 Primary side of a transformer is connected to 230 V, 50 Hz supply. Turns ratio of primary to secondary winding is 10 : 1. Load resistance connected to secondary side is 46 Ω. The power consumed in it is :

Options

1. 12.5 W
2. 10.0 W
3. 12.0 W
4. 11.5 W

**Question Type :** MCQ
**Question ID :** 533543509
**Option 1 ID :** 5335431772
**Option 2 ID :** 5335431769
**Option 3 ID :** 5335431771
**Option 4 ID :** 5335431770
**Status :** Not Answered
**Chosen Option :** --

Q.36 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

**Assertion (A) :** The property of body, by virtue of which it tends to regain its original shape when the external force is removed, is Elasticity.

**Reason (R) :** The restoring force depends upon the bonded inter atomic and inter molecular force of solid.

In the light of the above statements, choose the **correct** answer from the options given below :

Options

1. **(A)** is true but **(R)** is false
2. Both **(A)** and **(R)** are true and **(R)** is the correct explanation of **(A)**
3. **(A)** is false but **(R)** is true
4. Both **(A)** and **(R)** are true but **(R)** is **not** the correct explanation of **(A)**

**Question Type :** MCQ
**Question ID :** 533543503
**Option 1 ID :** 5335431747
**Option 2 ID :** 5335431745
**Option 3 ID :** 5335431748
**Option 4 ID :** 5335431746
**Status :** Answered
**Chosen Option :** 2

Q.37 The atomic mass of ${}_6C^{12}$ is 12.000000 u and that of ${}_6C^{13}$ is 13.003354 u. The required energy to remove a neutron from ${}_6C^{13}$, if mass of neutron is 1.008665 u, will be :

Options

1. 6.25 MeV
2. 4.95 MeV
3. 62.5 MeV
4. 49.5 MeV

**Question Type :** MCQ
**Question ID :** 533543513
**Option 1 ID :** 5335431786
**Option 2 ID :** 5335431785
**Option 3 ID :** 5335431788
**Option 4 ID :** 5335431787
**Status :** Not Answered
**Chosen Option :** --

Q.38 The equation of state of a real gas is given by $\left(P + \frac{a}{V^2}\right)(V - b) = RT$, where P, V and T are pressure, volume and temperature respectively and R is the universal gas constant. The dimensions of $\frac{a}{b^2}$ is similar to that of :

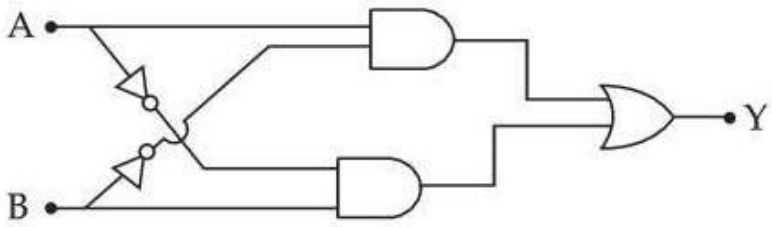
Options

1. P
2. R
3. PV
4. RT

**Question Type :** MCQ
**Question ID :** 533543497
**Option 1 ID :** 5335431721
**Option 2 ID :** 5335431722
**Option 3 ID :** 5335431724
**Option 4 ID :** 5335431723
**Status :** Answered
**Chosen Option :** 4

Q.39

The truth table of the given circuit diagram is :




Options

1.

| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

2.

| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

3.

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

4.

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |



**Question Type :** MCQ
**Question ID :** 533543514
**Option 1 ID :** 5335431792
**Option 2 ID :** 5335431789
**Option 3 ID :** 5335431791
**Option 4 ID :** 5335431790
**Status :** Answered
**Chosen Option :** 4

Q.40 Given below are two statements :

**Statement (I) :** The limiting force of static friction depends on the area of contact and independent of materials.

**Statement (II) :** The limiting force of kinetic friction is independent of the area of contact and depends on materials.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options

1. **Statement I** is correct but **Statement II** is incorrect
2. Both **Statement I** and **Statement II** are incorrect
3. Both **Statement I** and **Statement II** are correct
4. **Statement I** is incorrect but **Statement II** is correct

**Question Type :** MCQ
**Question ID :** 533543500
**Option 1 ID :** 5335431735
**Option 2 ID :** 5335431734
**Option 3 ID :** 5335431733
**Option 4 ID :** 5335431736
**Status :** Answered
**Chosen Option :** 1

Q.41 A current of 200 μA deflects the coil of a moving coil galvanometer through 60°. The current to cause deflection through $\frac{\pi}{10}$ radian is :

Options

1. 30 μA
2. 120 μA
3. 180 μA
4. 60 μA

**Question Type :** MCQ
**Question ID :** 533543508
**Option 1 ID :** 5335431767
**Option 2 ID :** 5335431765
**Option 3 ID :** 5335431768
**Option 4 ID :** 5335431766
**Status :** Answered
**Chosen Option :** 4

Q.42 A ball suspended by a thread swings in a vertical plane so that its magnitude of acceleration in the extreme position and lowest position are equal. The angle ($\theta$) of thread deflection in the extreme position will be :

Options

1. $2\tan^{-1}\left(\frac{1}{2}\right)$

2. $\tan^{-1}(\sqrt{2})$

3. $2\tan^{-1}\left(\frac{1}{\sqrt{5}}\right)$

4. $\tan^{-1}\left(\frac{1}{2}\right)$

**Question Type :** MCQ
**Question ID :** 533543498
**Option 1 ID :** 5335431726
**Option 2 ID :** 5335431727
**Option 3 ID :** 5335431728
**Option 4 ID :** 5335431725
**Status :** Not Answered
**Chosen Option :** --

Q.43 A bullet is fired into a fixed target looses one third of its velocity after travelling 4 cm. It penetrates further $D \times 10^{-3}$ m before coming to rest. The value of D is :

Options

1. 3

2. 5

3. 2

4. 4

**Question Type :** MCQ
**Question ID :** 533543501
**Option 1 ID :** 5335431738
**Option 2 ID :** 5335431740
**Option 3 ID :** 5335431737
**Option 4 ID :** 5335431739
**Status :** Not Answered
**Chosen Option :** --

Q.44 During an adiabatic process, the pressure of a gas is found to be proportional to the cube of its absolute temperature. The ratio of $\frac{Cp}{Cv}$ for the gas is :

Options

1. $\frac{3}{2}$
2. $\frac{9}{7}$
3. $\frac{5}{3}$
4. $\frac{7}{5}$

Question Type : MCQ
Question ID : 533543504
Option 1 ID : 5335431750
Option 2 ID : 5335431752
Option 3 ID : 5335431751
Option 4 ID : 5335431749
Status : Not Answered
Chosen Option : --

Q.45 An object is placed in a medium of refractive index 3. An electromagnetic wave of intensity $6\times10^8$ W/m$^2$ falls normally on the object and it is absorbed completely. The radiation pressure on the object would be (speed of light in free space $=3\times10^8$ m/s) :

Options

1. $18\ \text{Nm}^{-2}$
2. $36\ \text{Nm}^{-2}$
3. $2\ \text{Nm}^{-2}$
4. $6\ \text{Nm}^{-2}$

Question Type : MCQ
Question ID : 533543510
Option 1 ID : 5335431774
Option 2 ID : 5335431775
Option 3 ID : 5335431773
Option 4 ID : 5335431776
Status : Not Answered
Chosen Option : --

Q.46

The total kinetic energy of 1 mole of oxygen at 27°C is :

[Use universal gas constant (R) = 8.31 J/mole K]

Options

1. 6845.5 J
2. 6232.5 J
3. 5670.5 J
4. 5942.0 J

**Question Type :** MCQ
**Question ID :** 533543505
**Option 1 ID :** 5335431756
**Option 2 ID :** 5335431755
**Option 3 ID :** 5335431753
**Option 4 ID :** 5335431754
**Status :** Not Answered
**Chosen Option :** --

Q.47

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

**Assertion (A) :** The angular speed of the moon in its orbit about the earth is more than the angular speed of the earth in its orbit about the sun.

**Reason (R) :** The moon takes less time to move around the earth than the time taken by the earth to move around the sun.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options **1.**

Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

2. **(A)** is correct but **(R)** is not correct
3. **(A)** is not correct but **(R)** is correct
4. Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

**Question Type :** MCQ
**Question ID :** 533543502
**Option 1 ID :** 5335431741
**Option 2 ID :** 5335431743
**Option 3 ID :** 5335431744
**Option 4 ID :** 5335431742
**Status :** Answered
**Chosen Option :** 4

Q.48 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

**Assertion (A) :** Work done by electric field on moving a positive charge on an equipotential surface is always zero.

**Reason (R) :** Electric lines of forces are always perpendicular to equipotential surfaces.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options **1.**

Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

**2.**

Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

**3.** **(A)** is correct but **(R)** is not correct

**4.** **(A)** is not correct but **(R)** is correct

**Question Type :** MCQ
**Question ID :** 533543506
**Option 1 ID :** 5335431757
**Option 2 ID :** 5335431758
**Option 3 ID :** 5335431759
**Option 4 ID :** 5335431760
**Status :** Answered
**Chosen Option :** 2

Q.49 The threshold frequency of a metal with work function 6.63 eV is :

Options

**1.** $1.6 \times 10^{15}$ Hz

**2.** $16 \times 10^{15}$ Hz

**3.** $1.6 \times 10^{12}$ Hz

**4.** $16 \times 10^{12}$ Hz

**Question Type :** MCQ
**Question ID :** 533543512
**Option 1 ID :** 5335431783
**Option 2 ID :** 5335431784
**Option 3 ID :** 5335431781
**Option 4 ID :** 5335431782
**Status :** Answered
**Chosen Option :** 1

Q.50 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

**Assertion (A) :** In Vernier calliper if positive zero error exists, then while taking measurements, the reading taken will be more than the actual reading.

**Reason (R) :** The zero error in Vernier Calliper might have happened due to manufacturing defect or due to rough handling.

In the light of the above statements, choose the **correct** answer from the options given below :

Options

1. **(A)** is true but **(R)** is false

2. Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**

3. **(A)** is false but **(R)** is true

4. Both **(A)** and **(R)** are correct but **(R)** is **not** the correct explanation of **(A)**

**Question Type :** MCQ
**Question ID :** 533543515
**Option 1 ID :** 5335431795
**Option 2 ID :** 5335431793
**Option 3 ID :** 5335431796
**Option 4 ID :** 5335431794
**Status :** Answered
**Chosen Option :** 2

**Section :** Physics Section B

Q.51 A body falling under gravity covers two points A and B separated by 80 m in 2 s. The distance of upper point A from the starting point is _____ m (use $g = 10\ ms^{-2}$).

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543517
**Status :** Not Answered

Q.52 A series LCR circuit with $L = \frac{100}{\pi}$ mH, $C = \frac{10^{-3}}{\pi}$ F and $R = 10\ \Omega$, is connected across an ac source of 220 V, 50 Hz supply. The power factor of the circuit would be _____.

**Given** 1
**Answer :**

**Question Type :** SA
**Question ID :** 533543524
**Status :** Answered

Q.53 If Rydberg's constant is R, the longest wavelength of radiation in Paschen series will be $\frac{\alpha}{7R}$, where $\alpha =$ _____.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543526
**Status :** Not Answered

Q.54 Two charges of $-4\ \mu C$ and $+4\ \mu C$ are placed at the points A(1, 0, 4)m and B(2, $-1$, 5)m located in an electric field $\vec{E} = 0.20\ \hat{i}\ V/cm$. The magnitude of the torque acting on the dipole is $8\sqrt{\alpha} \times 10^{-5}$ Nm, where $\alpha =$ _____.

**Given** 3
**Answer :**

**Question Type :** SA
**Question ID :** 533543521
**Status :** Answered

Q.55 The electric potential at the surface of an atomic nucleus ($z = 50$) of radius $9 \times 10^{-13}$ cm is _____ $\times 10^6$ V.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543522
**Status :** Not Answered

Q.56 A ring and a solid sphere roll down the same inclined plane without slipping. They start from rest. The radii of both bodies are identical and the ratio of their kinetic energies is $\frac{7}{x}$, where $x$ is _____.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543518
**Status :** Not Answered

Q.57 A closed organ pipe 150 cm long gives 7 beats per second with an open organ pipe of length 350 cm, both vibrating in fundamental mode. The velocity of sound is _____ m/s.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543520
**Status :** Not Answered

Q.58 A parallel beam of monochromatic light of wavelength 5000 Å is incident normally on a single narrow slit of width 0.001 mm. The light is focused by convex lens on screen, placed on its focal plane. The first minima will be formed for the angle of diffraction of _____ (degree).

**Given** --
**Answer :**

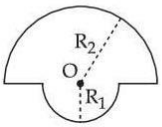
**Question Type :** SA
**Question ID :** 533543525
**Status :** Not Answered

Q.59 The reading of pressure metre attached with a closed pipe is $4.5 \times 10^4$ N/m$^2$. On opening the valve, water starts flowing and the reading of pressure metre falls to $2.0 \times 10^4$ N/m$^2$. The velocity of water is found to be $\sqrt{V}$ m/s. The value of V is _____.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543519
**Status :** Not Answered

Q.60 The magnetic field at the centre of a wire loop formed by two semicircular wires of radii $R_1 = 2\pi$ m and $R_2 = 4\pi$ m, carrying current I = 4 A as per figure given below is $\alpha \times 10^{-7}$ T. The value of $\alpha$ is _____. (Centre O is common for all segments)




**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543523
**Status :** Not Answered

**Section :** Chemistry Section A

Q.61 Which structure of protein remains intact after coagulation of egg white on boiling ?

Options

1. Secondary
2. Primary
3. Quaternary
4. Tertiary

**Question Type :** MCQ
**Question ID :** 533543545
**Option 1 ID :** 5335431885
**Option 2 ID :** 5335431884
**Option 3 ID :** 5335431886
**Option 4 ID :** 5335431883
**Status :** Not Answered
**Chosen Option :** --

Q.62 Which of the following cannot function as an oxidising agent ?

Options

1. $MnO_4^-$
2. $BrO_3^-$
3. $SO_4^{2-}$
4. $N^{3-}$

**Question Type :** MCQ
**Question ID :** 533543531
**Option 1 ID :** 5335431829
**Option 2 ID :** 5335431828
**Option 3 ID :** 5335431830
**Option 4 ID :** 5335431827
**Status :** Answered
**Chosen Option :** 3

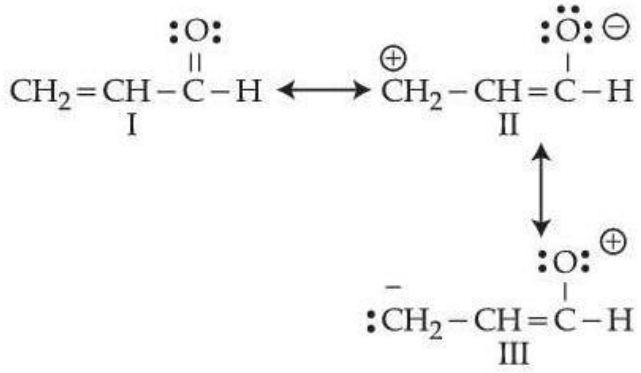
Q.63 Identify from the following species in which $d^2sp^3$ hybridization is shown by central atom :

Options

1. $BrF_5$
2. $[Pt(Cl_4)]^{2-}$
3. $SF_6$
4. $[Co(NH_3)_6]^{3+}$

**Question Type :** MCQ
**Question ID :** 533543528
**Option 1 ID :** 5335431815
**Option 2 ID :** 5335431818
**Option 3 ID :** 5335431816
**Option 4 ID :** 5335431817
**Status :** Answered
**Chosen Option :** 4

Q.64 The order of relative stability of the contributing structure is :



Choose the **correct** answer from the options given below :

Options

1. III > II > I
2. I > II > III
3. I = II = III
4. II > I > III

**Question Type :** MCQ
**Question ID :** 533543537
**Option 1 ID :** 5335431853
**Option 2 ID :** 5335431852
**Option 3 ID :** 5335431854
**Option 4 ID :** 5335431851
**Status :** Not Answered
**Chosen Option :** --

Q.65 The quantity which changes with temperature is :

Options

1. Molality
2. Mass percentage
3. Molarity
4. Mole fraction

**Question Type :** MCQ
**Question ID :** 533543529
**Option 1 ID :** 5335431820
**Option 2 ID :** 5335431821
**Option 3 ID :** 5335431819
**Option 4 ID :** 5335431822
**Status :** Answered
**Chosen Option :** 3

Q.66 The final product A, formed in the following reaction sequence is :

$$Ph-CH=CH_2 \xrightarrow[\text{(iii) HBr}]{\text{(i) } BH_3,\ \text{(ii) } H_2O_2,\ \ominus OH} A$$
(iv) Mg, ether, then $HCHO/H_3O^+$

Options

1. $Ph-CH_2-CH_2-CH_2-OH$

2. $Ph-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_3$

3. $Ph-CH_2-CH_2-CH_3$

4. $Ph-\underset{\displaystyle CH_2OH}{\underset{|}{CH}}-CH_3$

**Question Type :** MCQ
**Question ID :** 533543541
**Option 1 ID :** 5335431870
**Option 2 ID :** 5335431868
**Option 3 ID :** 5335431867
**Option 4 ID :** 5335431869
**Status :** Not Answered
**Chosen Option :** --

Q.67 Identity the **incorrect** pair from the following :

Options

1. Wacker process - $PtCl_2$

2. Polythene preparation - $TiCl_4$, $Al(CH_3)_3$

3. Haber process - Iron

4. Photography - AgBr

**Question Type :** MCQ
**Question ID :** 533543533
**Option 1 ID :** 5335431837
**Option 2 ID :** 5335431835
**Option 3 ID :** 5335431836
**Option 4 ID :** 5335431838
**Status :** Not Answered
**Chosen Option :** --

Q.68 Phenolic group can be identified by a positive :

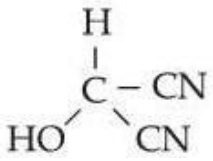
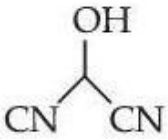
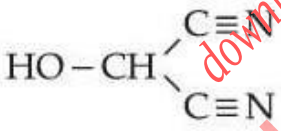
Options

1. Phthalein dye test
2. Carbylamine test
3. Lucas test
4. Tollen's test

**Question Type :** MCQ
**Question ID :** 533543546
**Option 1 ID :** 5335431887
**Option 2 ID :** 5335431890
**Option 3 ID :** 5335431888
**Option 4 ID :** 5335431889
**Status :** Answered
**Chosen Option :** 3

Q.69 Bond line formula of $HOCH(CN)_2$ is :

Options

1. 
2. 
3. 
4. 

**Question Type :** MCQ
**Question ID :** 533543536
**Option 1 ID :** 5335431848
**Option 2 ID :** 5335431849
**Option 3 ID :** 5335431850
**Option 4 ID :** 5335431847
**Status :** Answered
**Chosen Option :** 2

Q.70 Given below are two statements :

**Statement (I) :** Oxygen being the first member of group 16 exhibits only $-2$ oxidation state.

**Statement (II) :** Down the group 16 stability of $+4$ oxidation state decreases and $+6$ oxidation state increases.

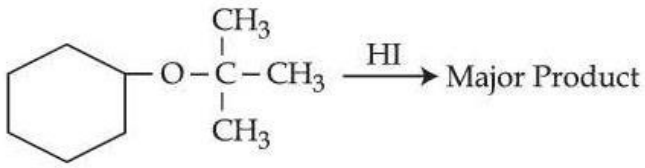
In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options

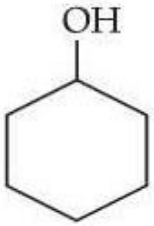
1. **Statement I** is incorrect but **Statement II** is correct
2. Both **Statement I** and **Statement II** are incorrect
3. **Statement I** is correct but **Statement II** is incorrect
4. Both **Statement I** and **Statement II** are correct

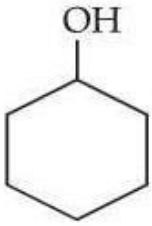
**Question Type :** MCQ
**Question ID :** 533543532
**Option 1 ID :** 5335431834
**Option 2 ID :** 5335431832
**Option 3 ID :** 5335431833
**Option 4 ID :** 5335431831
**Status :** Answered
**Chosen Option :** 2

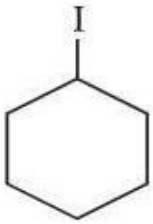
Q.71 Major product formed in the following reaction is a mixture of :

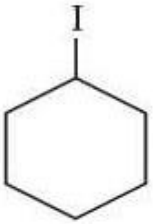



Options

1.  and $(CH_3)_3COH$

2.  and $CH_3-\underset{CH_3}{\overset{CH_3}{\underset{|}{\overset{|}{C}}}}-I$

3.  and $(CH_3)_3CI$

4.  and $(CH_3)_3COH$



**Question Type :** MCQ
**Question ID :** 533543542
**Option 1 ID :** 5335431874
**Option 2 ID :** 5335431871
**Option 3 ID :** 5335431873
**Option 4 ID :** 5335431872
**Status :** Answered
**Chosen Option :** 2

Q.72 The incorrect statement regarding conformations of ethane is :

Options

1. The conformations of ethane are inter-convertible to one-another.

2. The dihedral angle in staggered conformation is 60°.

3. Ethane has infinite number of conformations.

4. Eclipsed conformation is the most stable conformation.

**Question Type :** MCQ
**Question ID :** 533543539
**Option 1 ID :** 5335431862
**Option 2 ID :** 5335431861
**Option 3 ID :** 5335431859
**Option 4 ID :** 5335431860
**Status :** Not Answered
**Chosen Option :** --

Q.73 The technique used for purification of steam volatile water immiscible substances is :

Options

1. fractional distillation

2. distillation

3. fractional distillation under reduced pressure

4. steam distillation

**Question Type :** MCQ
**Question ID :** 533543538
**Option 1 ID :** 5335431857
**Option 2 ID :** 5335431855
**Option 3 ID :** 5335431858
**Option 4 ID :** 5335431856
**Status :** Not Answered
**Chosen Option :** --

Q.74 The molecular formula of second homologue in the homologous series of mono carboxylic acids is _____.

Options

1. $C_2H_2O_2$
2. $C_3H_6O_2$
3. $CH_2O$
4. $C_2H_4O_2$

**Question Type :** MCQ
**Question ID :** 533543535
**Option 1 ID :** 5335431846
**Option 2 ID :** 5335431843
**Option 3 ID :** 5335431844
**Option 4 ID :** 5335431845
**Status :** Answered
**Chosen Option :** 3

Q.75 Choose the correct option having all the elements with $d^{10}$ electronic configuration from the following :

Options

1. $^{46}Pd$, $^{28}Ni$, $^{26}Fe$, $^{24}Cr$
2. $^{27}Co$, $^{28}Ni$, $^{26}Fe$, $^{24}Cr$
3. $^{29}Cu$, $^{30}Zn$, $^{48}Cd$, $^{47}Ag$
4. $^{28}Ni$, $^{24}Cr$, $^{26}Fe$, $^{29}Cu$

**Question Type :** MCQ
**Question ID :** 533543527
**Option 1 ID :** 5335431813
**Option 2 ID :** 5335431814
**Option 3 ID :** 5335431812
**Option 4 ID :** 5335431811
**Status :** Answered
**Chosen Option :** 3

Q.76 Given below are two statements :

**Statement (I) :** In the Lanthanoids, the formation $Ce^{+4}$ is favoured by its noble gas configuration.

**Statement (II) :** $Ce^{+4}$ is a strong oxidant reverting to the common $+3$ state.

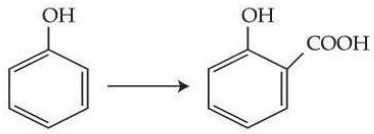
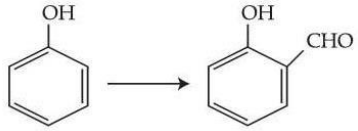
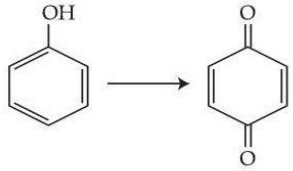
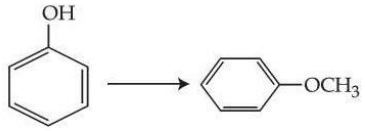
In the light of the above statements, choose the **most appropriate** answer from the options given below :

Options

1. **Statement I** is true but **Statement II** is false
2. Both **Statement I** and **Statement II** are true
3. Both **Statement I** and **Statement II** are false
4. **Statement I** is false but **Statement II** is true

**Question Type :** MCQ
**Question ID :** 533543534
**Option 1 ID :** 5335431841
**Option 2 ID :** 5335431839
**Option 3 ID :** 5335431840
**Option 4 ID :** 5335431842
**Status :** Not Answered
**Chosen Option :** --

Q.77 Match **List - I** with **List - II**.

| **List - I (Reaction)** | | **List - II (Reagent(s))** |
|---|---|---|
| (A) |  | (I) $Na_2Cr_2O_7$, $H_2SO_4$ |
| (B) |  | (II) (i) NaOH (ii) $CH_3Cl$ |
| (C) |  | (III) (i) NaOH, $CHCl_3$ (ii) NaOH (iii) HCl |
| (D) |  | (IV) (i) NaOH (ii) $CO_2$ (iii) HCl |

Choose the **correct** answer from the options given below :

Options

1. (A)-(IV), (B)-(III), (C)-(I), (D)-(II)
2. (A)-(IV), (B)-(I), (C)-(III), (D)-(II)
3. (A)-(II), (B)-(III), (C)-(I), (D)-(IV)
4. (A)-(II), (B)-(I), (C)-(III), (D)-(IV)

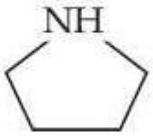


**Question Type :** MCQ
**Question ID :** 533543543
**Option 1 ID :** 5335431878
**Option 2 ID :** 5335431877
**Option 3 ID :** 5335431875
**Option 4 ID :** 5335431876
**Status :** Answered
**Chosen Option :** 1

Q.78 Identify B formed in the reaction.

$$Cl-(CH_2)_4-Cl \xrightarrow{\text{excess } NH_3} A \xrightarrow{NaOH} B + H_2O + NaCl$$

Options

1. 

2. 

3. $H_2N-(CH_2)_4-NH_2$

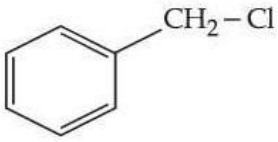
4. $\overset{+}{N}H_3Cl-(CH_2)_4-\overset{+}{N}H_3Cl^-$

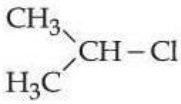
**Question Type :** MCQ
**Question ID :** 533543544
**Option 1 ID :** 5335431881
**Option 2 ID :** 5335431882
**Option 3 ID :** 5335431880
**Option 4 ID :** 5335431879
**Status :** Not Answered
**Chosen Option :** --

Q.79 Which among the following halide/s will not show $S_N1$ reaction :

(A) $H_2C=CH-CH_2Cl$

(B) $CH_3-CH=CH-Cl$

(C) 

(D) 

Choose the **most appropriate** answer from the options given below :

Options

1. (A) and (B) only
2. (B) and (C) only
3. (B) only
4. (A), (B) and (D) only

**Question Type :** MCQ
**Question ID :** 533543540
**Option 1 ID :** 5335431864
**Option 2 ID :** 5335431863
**Option 3 ID :** 5335431866
**Option 4 ID :** 5335431865
**Status :** Answered
**Chosen Option :** 1

Q.80 Which of the following statements is not correct about rusting of iron ?

Options

1. Dissolved acidic oxides $SO_2$, $NO_2$ in water act as catalyst in the process of rusting.
2. Coating of iron surface by tin prevents rusting, even if the tin coating is peeling off.
3. When pH lies above 9 or 10, rusting of iron does not take place.
4. Rusting of iron is envisaged as setting up of electrochemical cell on the surface of iron object.

**Question Type :** MCQ
**Question ID :** 533543530
**Option 1 ID :** 5335431825
**Option 2 ID :** 5335431826
**Option 3 ID :** 5335431824
**Option 4 ID :** 5335431823
**Status :** Answered
**Chosen Option :** 1

Q.81 For a certain thermochemical reaction M → N at T = 400 K, $\Delta H^{\ominus} = 77.2$ kJ mol$^{-1}$, $\Delta S = 122$ JK$^{-1}$, log equilibrium constant (logK) is $-$_____ $\times 10^{-1}$.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543549
**Status :** Not Answered

Q.82 1 mole of PbS is oxidised by "X" moles of $O_3$ to get "Y" moles of $O_2$. X + Y = _____.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543553
**Status :** Not Answered

Q.83 9.3 g of aniline is subjected to reaction with excess of acetic anhydride to prepare acetanilide. The mass of acetanilide produced if the reaction is 100% completed is _____ $\times 10^{-1}$ g.
(Given molar mass in g mol$^{-1}$ N : 14, O : 16, C : 12, H : 1)

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543556
**Status :** Not Answered

Q.84 The number of non-polar molecules from the following is _____.
HF, $H_2O$, $SO_2$, $H_2$, $CO_2$, $CH_4$, $NH_3$, HCl, $CHCl_3$, $BF_3$

**Given** --
**Answer :**

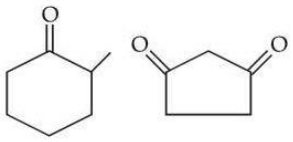
**Question Type :** SA
**Question ID :** 533543548
**Status :** Not Answered

Q.85 Time required for completion of 99.9% of a First order reaction is _____ times of half life ($t_{1/2}$) of the reaction.

**Given** 3
**Answer :**

**Question Type :** SA
**Question ID :** 533543551
**Status :** Answered

Q.86 Total number of compounds with Chiral carbon atoms from following is _____.



$CH_3-CH_2-CH(NO_2)-COOH$

$CH_3-CH_2-CHBr-CH_2-CH_3$

$CH_3-CH(I)-CH_2-NO_2$

$CH_3-CH_2-CH(OH)-CH_2OH$

$CH_3-\underset{\underset{I}{|}}{CH}-CH(I)-C_2H_5$

**Given** 5
**Answer :**

**Question Type :** SA
**Question ID :** 533543555
**Status :** Answered

Q.87 The hydrogen electrode is dipped in a solution of pH = 3 at 25°C. The potential of the electrode will be $-$_____ $\times 10^{-2}$ V.

$\left(\frac{2.303\ RT}{F} = 0.059\ V\right)$

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543550
**Status :** Not Answered

Q.88 Volume of 3 M NaOH (formula weight 40 g $mol^{-1}$) which can be prepared from 84 g of NaOH is _____ $\times 10^{-1}$ $dm^3$.

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543547
**Status :** Not Answered

Q.89 The Spin only magnetic moment value of square planar complex $[Pt(NH_3)_2Cl(NH_2CH_3)]Cl$ is _____ B.M. (Nearest integer)
(Given atomic number for Pt = 78)

**Given** --
**Answer :**

**Question Type :** SA
**Question ID :** 533543554
**Status :** Not Answered

Q.90 Total number of ions from the following with noble gas configuration is _____.

$Sr^{2+}(z=38)$, $Cs^{+}(z=55)$, $La^{2+}(z=57)$, $Pb^{2+}(z=82)$, $Yb^{2+}(z=70)$ and $Fe^{2+}(z=26)$

**Given** --

**Answer :**

**Question Type :** SA

**Question ID :** 533543552

**Status :** Not Answered